

PATENT ABSTRACTS OF JAPAN

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(54) FANCY FODDER STOCK

(57)Abstract:

PURPOSE: To provide the title fodder stock excellent in flavor, intestinal disorder- controlling action, immunological function-activating action and growth- promoting effect, useful for livestock etc., comprising fermented milk and grape juice.

CONSTITUTION: The objective fodder stock comprising (A) 100 pts.wt. of fermented milk prepared by fermentation of e.g. animal milk with lactobacillus or its combination with yeast and (B) pref. 0.2-5 pts.wt. of grape juice. The present fodder stock is added pref. at 1-30wt.% to a feed such as artificial milk, formula feed or natural pasture.

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CLAIMS

[Claim(s)]

[Claim 1]A palatability feed raw material containing fermented milk and grape juice.

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DETAILED DESCRIPTION**[Detailed Description of the Invention]****[0001]**

[Industrial Application] About a palatability feed raw material, more particularly, to livestock animals, such as a baby pig or a pig which carried out anorexia, this invention shows the optimal palatability and relates to the palatability feed raw material which brings about improvement of the amount of feed intake, and also growth promotion especially.

[0002]

[Description of the Prior Art] In recent years, by the technical development in the zootechnics related field being remarkable, for example, paying synthetic milk to the baby pig of seven to 10 age in day of the post partum, and taking in feed at an early stage after that, physical strength recovery of a mother hog is brought forward, and the improvement in the economic effectuation by the early weaning of livestock animals, such as raising shipment efficiency, is measured. However, the change to synthetic diet from the mother's milk in this early weaning gives great stress to livestock animals, causes reduction of the amount of feed intake, diarrhea, the illness, etc., and has become causes, such as a temporary loss weight and health disturbance.

[0003] Then, in order to measure improvement of the amount of feed intake, addition of a flavor, adjustment of a feed moisture content, adjustment of feed shape, etc. are performed, for example, but the actual condition is that the effect does not have. [enough]

[0004] On the other hand, in order to improve improvement of the amount of feed intake further, the feed additives (JP,60-141232,A) which comprise fermented milk are proposed, but the effect may not be satisfied thoroughly, either and development of further outstanding feed is desired.

[0005]

[Problem(s) to be Solved by the Invention] Therefore, to the livestock animals at the time of

early weaning, etc., the purpose of this invention measures improvement of the amount of feed intake, and there is in providing the palatability feed raw material which can promote growth especially.

[0006]

[Means for Solving the Problem]According to this invention, a palatability feed raw material containing fermented milk and grape juice is provided.

[0007]This invention is explained still in detail below.

[0008]A palatability feed raw material of this invention contains fermented milk and grape juice as an indispensable ingredient.

[0009]For example the fermented milk used for this invention can carry out fermentation treatment of the beast milk with lactic acid bacteria or lactic acid bacteria, yeast, etc., and can prepare it, and this fermentation treatment can also be performed on a multi stage story. As said beast milk, as a dairy ingredient, beast milk etc. which are used can be mentioned and all the fat beast milk, such as a cow, a sheep, and a goat, degreasing beast milk, etc. can usually be used preferably. It is not what will be limited especially if growth under beast milk existence is possible for said lactic acid bacteria, For example, a streptococcus (*Streptococcus*) group, a PEDEOKOKKASU (*Pedioc-occus*) group, The Leuconostoc (*Leuconostoc*) group, the Lactobacillus (*Lactobacillus*) group, Can mention lactic acid bacteria belonging to a Bifidobacterium (*Bifidobacterium*) group etc., etc., and also specifically, As a sale-in-lots stock, easily For example, available *Lactobacillus bulgaricus* (*Lactobacillus delbrueckii* subsp.*bulgaricus*), *Lactobacillus helveticus* (*Lactobacillus helveticus*), *Lactobacillus acidophilus* (*Lactobacillus acidophilus*),*Streptococcus thermostatophilus* (*Streptococcus thermophilus*),*Streptococcus RAKUTISU* (*Streptococcus lactis*), *Leuconostoc SHITOROBORAMU* (*Leuconostoc citrovorum*),*Bifidobacterium bifidum* (*Bifidobacterium bifidum*), *Bifidobacterium longum* (*Bifidobacterium longum*) etc. can be mentioned, and when using it, it can be independent or can use as a mixed starter. Yeast etc. which can be increased can be mentioned by carrying out simultaneous fermentation as said yeast with yeast in which growth under beast milk existence is possible, or bottom lactic acid bacteria of beast milk existence. *Saccharomyces cerevisiae* which can specifically obtain a sale-in-lots stock easily, for example (*Saccharomyces cerevisiae*),*Candida YUTIRISU* (*Candida utilis*), *Kluyveromyces RAKUTISU* (*Kluyveromyces lscitis*), etc. can be mentioned, and when using it, it can be independent or can use as a mixture.

[0010]In order to manufacture said fermented milk, in being able to carry out in accordance with a publicly known method, for example, performing two-step fermentation, To beast milk 100 weight section, carry out 1-5 weight-section inoculation, and first a starter of lactic acid bacteria or lactic acid bacteria, and yeast as primary fermentation, After making it ferment in 25-45 ** for 16 to 48 hours preferably, if needed. It can obtain by adding 15 to 50% of the

weight, carrying out sugar-added [of the sugar, such as sucrose, grape sugar, or invert sugar,] to the whole sour milk preferably obtained by primary fermentation, and subsequently performing fermentation in 15-30 ** as secondary fermentation for 15 to 25 hours. In inoculating lactic acid bacteria and yeast independently and fermenting them, after inoculating lactic acid bacteria at the time of said primary fermentation and performing lactic acid fermentation, it can obtain by inoculating yeast at the time of said secondary fermentation, and carrying out symbiosis fermentation. Sugar-added [said] is for raising a starter's nutrient or the preservability of fermented milk acquired, and it is not necessary to necessarily add it. In order to raise this preservability, germicidal treatment of the obtained fermented milk can also be carried out.

[0011]Grape juice used for this invention, for example Campbell early (Campbell Early), Concord (Concord), muscat bailey A (Muscat Bailey A), Fred Nia (Fredonia), Delaware (Delaware), Niagara (Niagara), Portland (Port land), Raw material grapes, such as the neo ant cant (Neo Alicant), a publicly known manufacturing process, For example, 1 / 6 concentration grape juice which could be prepared and was usually condensed 6 times according to a publicly known concentration step, or commercial grape juice can also be used as it is by considering it as fruit juice according to washing, crash, heating, juice, ** pulp, stericooling, centrifugal separation, a filtering step, etc. As for especially a blending ratio of this 1 / 6 grape juice, it is preferred that it is the range of 0.2 to 5 weight section 0.1 to 20 weight section to said fermented milk 100 weight section. Since in besides said range desired palatability is hard to be acquired and an enhancement effect of the amount of feed intake falls, it is not desirable. Although a blending ratio of said grape juice showed 1 / 6 concentration grape juice which is usually used and which was condensed 6 times, The blending ratio of this grape juice should just blend about 6/5 quantity of concentration grape juice said 6 times, when it can be made to fluctuate-like proportionally according to the enrichment, for example, uses concentration grape juice 5 times.

[0012]In order to prepare a palatability feed raw material of this invention, it can obtain by mixing said fermented milk and grape juice. Under the present circumstances, although grape juice may carry out addition mixing during fermentation at the time of preparing fermented milk, it is preferred to carry out addition mixing after an end of fermentation economically.

[0013]Although a palatability feed raw material of this invention can be used as feed as it is, it is preferred to mix and use it for other economical for example, feed, such as synthetic milk, milk substitutes, publicly known assorted mixed feed, and natural grass. Thus, as for the amount of palatability feed raw material used of this invention in a case of mixing with other feed, it is preferred that it is 1 to 30% of the weight of a range to the whole feed. When the amount used is less than 1 % of the weight, since a desired effect is not expectable, it is not desirable.

[0014]

[Effect of the Invention] Since the palatability feed raw material of this invention has combined the flavor of fermented milk, and the flavor of grape juice, it can show the palatability outstanding to livestock animals as compared with the conventional feed raw material, and can promote the amount of feed intake. A diarrhea preventive effect, the prevention-of-a-disease effect, etc. can be acquired by the ready intestines operation by fermented milk, immune-function activation operation, etc. Therefore, the outstanding growth facilitatory effect is shown especially to the livestock animals of the weaning period and a growth period.

[0015]

[Example] Although an example explains this invention still in detail below, this invention is not limited to these.

[0016]

[Work example 1] The amount part of lactic starter (*Lactobacillus delbrueckii* subsp. *bulgaricus* ATCC-11842) duplex was inoculated into sterilization skim milk 100 weight section, 37 ** and 20-hour lactic acid fermentation were performed, and the sour milk of 1.5 % of the weight of lactic acid concentration ** was prepared. Subsequently, after inoculating the amount part of yeast starter (*Candida utilis* IFO-1086) duplex into the obtained sour milk, sucrose 45 weight section was added, and the nutrient of yeast was supplied, and also osmotic pressure was changed, and 25 ** was fermented for 20 hours. Addition mixing of the sucrose 61 weight section was carried out so that concentration grape juice (trade name "1 / 5 concentration grape juice", product made from Welch, Inc.) 2.1 weight section might be added 5 times after the end of fermentation and also it might become 50 % of the weight of sucrose concentration. After carrying out heat sterilization treatment of the obtained mixed liquor for 30 minutes at 80 **, it cooled to the room temperature and the palatability feed raw material was prepared. Subsequently, addition mixing of the palatability feed raw material 167 obtained weight section was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 833 commercial weight section for breast-feeding term baby pigs, and examination feed was prepared. Both of contrast feed which consists only of obtained examination feed and breast-feeding term baby pig feed of said marketing was installed so that he could eat freely, and it fed for six days (2kg/day of each feed) with the cafeteria system at two sample offering baby pigs (average weight of 9.6 kg), and a residue and the intake which spilt and deducted quantity were measured. Under the present circumstances, the moisture content of examination feed and contrast feed presupposed that it is the same, and exchanged the 1-day by day setting position of examination feed and contrast feed. The result is shown in Table 1.

[0017]

[Comparative example 1] Palatability feed raw material 167 weight section obtained by

preparing a palatability feed raw material similarly in the examination feed of Example 1 except not carrying out addition mixing of the grape juice is made to be the same as that of Example 1, Addition mixing was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 833 commercial weight section for breast-feeding term baby pigs, and comparative study feed was prepared. About the obtained comparative study feed, intake was measured like Example 1. The result is shown in Table 1.

[0018]

[Table 1]

	对照飼料 A (g / 頭・日)	試験飼料 B (g / 頭・日)	B / A
実施例 1	28 ± 13	767 ± 13***	27.4
比較例 1	78 ± 57	605 ± 57***	7.8

*** P < 0.001

[0019]Compared with comparative study feed, the examination feed containing the palatability feed raw material of this invention had remarkable palatability, and there was much intake of a passage clear from the result of Table 1.

[0020]

[Work example 2]To sterilization skim milk 100 weight section. The mixed starter who consists of lactic starter (*Lactobacillus delbrueckii* subsp. *bulgaricus* ATCC-11842) and yeast starter (*Candida utilis*IFO-1086) 3 weight section is inoculated, Primary fermentation was performed at 37 ** for 20 hours, and the sour milk of 1.5 % of the weight of lactic acid acidity was prepared. Subsequently, sucrose 45 weight section was added to the obtained sour milk, and the nutrient of yeast was supplied, and also osmotic pressure was changed, and secondary fermentation was performed at 25 ** for 20 hours. Addition mixing of the sucrose 60 weight section was carried out so that concentration grape juice (trade name "1 / 5 concentration grape juice", product made from Welch, Inc.) 2.1 weight section might be added 5 times after the end of fermentation and also it might become 50% of sucrose concentration. After carrying out heat sterilization treatment of the obtained mixed liquor for 30 minutes at 80 **, it cooled to the room temperature and the palatability feed raw material was prepared. Subsequently, addition mixing of the palatability feed raw material 91 obtained weight section was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 909 commercial weight section for breast-feeding term baby pigs, and examination feed was prepared. Both of contrast feed which consists only of obtained examination feed and breast-feeding term baby pig feed of said marketing was installed so that he could eat freely, and it

fed for six days (1.5kg/(day)) with the cafeteria system at two sample offering baby pigs (average weight of 6.0 kg), and a residue and the intake which spilt and deducted quantity were measured. Under the present circumstances, the moisture content of examination feed and contrast feed presupposed that it is the same, and exchanged the 1-day by day setting position of examination feed and contrast feed. The result is shown in Table 2.

[0021]

[Comparative example 2] Palatability feed raw material 91 weight section obtained by preparing a palatability feed raw material similarly in the examination feed of Example 2 except not carrying out addition mixing of the grape juice is made to be the same as that of Example 1, Addition mixing was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 909 commercial weight section for breast-feeding term baby pigs, and comparative study feed was prepared. About the obtained comparative study feed, intake was measured like Example 2. The result is shown in Table 2.

[0022]

[Table 2]

	对照飼料 A (g / 頭・日)	試験飼料 B (g / 頭・日)	B / A
実施例 2	70 ± 37	392 ± 41***	5.6
比較例 2	148 ± 114	288 ± 85*	1.9

* P < 0.05, *** P < 0.001

[0023]Compared with comparative study feed, the examination feed containing the palatability feed raw material of this invention had remarkable palatability, and there was much intake of a passage clear from the result of Table 2.

[0024]

[Comparative example 3] 5 times, addition mixing of the concentration grape juice (trade name "1 / 5 concentration grape juice", product made from Welch, Inc.) 2.5 weight section was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 997.5 commercial weight section for breast-feeding term baby pigs, and comparative study feed was prepared. Both of contrast feed which consists only of obtained comparative study feed and breast-feeding term baby pig feed of said marketing was installed so that he could eat freely, and it fed for two days (1kg/(day)) with the cafeteria system at two sample offering baby pigs (average weight of 6.2 kg), and a residue and the intake which spilt and deducted quantity were measured. Under the present circumstances, the moisture content of comparative study feed and contrast feed presupposed that it is the same, and exchanged the

1-day by day setting position of comparative study feed and contrast feed. As a result, the intake of comparative study feed is 167**10g/animal and, and a day.

The intake of contrast feed was 119**12g/animal and, and a day.

Under the present circumstances (comparative study feed / contrast feed), it was =1.4. As a result, it turned out that the palatability of the comparative study feed containing only the grape juice which does not contain fermented milk is not remarkable as compared with contrast feed.

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TECHNICAL FIELD

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PRIOR ART

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[0003]Then, in order to measure improvement of the amount of feed intake, addition of a flavor, adjustment of a feed moisture content, adjustment of feed shape, etc. are performed, for example, but the actual condition is that the effect does not have. [enough]

[0004]On the other hand, in order to improve improvement of the amount of feed intake further, the feed additives (JP,60-141232,A) which comprise fermented milk are proposed, but the effect may not be satisfied thoroughly, either and development of further outstanding feed is desired.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since the palatability feed raw material of this invention has combined the flavor of fermented milk, and the flavor of grape juice, it can show the palatability outstanding to livestock animals as compared with the conventional feed raw material, and can promote the amount of feed intake. A diarrhea preventive effect, the prevention-of-a-disease effect, etc. can be acquired by the ready intestines operation by fermented milk, immune-function activation operation, etc. Therefore, the outstanding growth facilitatory effect is shown especially to the livestock animals of the weaning period and a growth period.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]Therefore, to the livestock animals at the time of early weaning, etc., the purpose of this invention measures improvement of the amount of feed intake, and there is in providing the palatability feed raw material which can promote growth especially.

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MEANS

[Means for Solving the Problem] According to this invention, a palatability feed raw material containing fermented milk and grape juice is provided.

[0007] This invention is explained still in detail below.

[0008] A palatability feed raw material of this invention contains fermented milk and grape juice as an indispensable ingredient.

[0009] For example the fermented milk used for this invention can carry out fermentation treatment of the beast milk with lactic acid bacteria or lactic acid bacteria, yeast, etc., and can prepare it, and this fermentation treatment can also be performed on a multi stage story. As said beast milk, as a dairy ingredient, beast milk etc. which are used can be mentioned and all the fat beast milk, such as a cow, a sheep, and a goat, degreasing beast milk, etc. can usually be used preferably. It is not what will be limited especially if growth under beast milk existence is possible for said lactic acid bacteria, For example, a streptococcus (Streptococcus) group, a PEDEOKOKKASU (Pedioc-occus) group, The Leuconostoc (Leuconostoc) group, the Lactobacillus (Lactobacillus) group, Can mention lactic acid bacteria belonging to a Bifidobacterium (Bifidobacterium) group etc., etc., and also specifically, As a sale-in-lots stock, easily For example, available *Lactobacillus bulgaricus* (*Lactobacillus delbrueckii* subsp.*bulgaricus*), *Lactobacillus helveticus* (*Lactobacillus helveticus*), *Lactobacillus acidophilus* (*Lactobacillus acidophilus*), *Streptococcus thermophilus* (*Streptococcus thermophilus*), *Streptococcus RAKUTISU* (*Streptococcus*), *Leuconostoc SHITOROBORAMU* (*Leuconostoc citororum*), *Bifidobacterium bifidum* (*Bifidobacterium bifidum*), *Bifidobacterium longum* (*Bifidobacterium longum*) etc. can be mentioned, and when using it, it can be independent or can use as a mixed starter. Yeast etc. which can be increased can be mentioned by carrying out simultaneous fermentation as said yeast with yeast in which growth under beast milk existence is possible, or bottom lactic acid bacteria of beast milk existence. *Saccharomyces cerevisiae* which can specifically obtain a sale-in-lots stock easily, for example (*Saccharomyces*

cerevisae), *Candida YUTIRISU* (*Candida utilis*), *Kluyveromyces RAKUTISU* (*Klyv-eromyces lsctis*), etc. can be mentioned, and when using it, it can be independent or can use as a mixture.

[0010]In order to manufacture said fermented milk, in being able to carry out in accordance with a publicly known method, for example, performing two-step fermentation, To beast milk 100 weight section, carry out 1-5 weight-section inoculation, and first a starter of lactic acid bacteria or lactic acid bacteria, and yeast as primary fermentation, After making it ferment in 25-45 ** for 16 to 48 hours preferably, if needed. It can obtain by adding 15 to 50% of the weight, carrying out sugar-added [of the sugar, such as sucrose, grape sugar, or invert sugar,] to the whole sour milk preferably obtained by primary fermentation, and subsequently performing fermentation in 15-30 ** as secondary fermentation for 15 to 25 hours. In inoculating lactic acid bacteria and yeast independently and fermenting them, after inoculating lactic acid bacteria at the time of said primary fermentation and performing lactic acid fermentation, it can obtain by inoculating yeast at the time of said secondary fermentation, and carrying out symbiosis fermentation. Sugar-added [said] is for raising a starter's nutrient or the preservability of fermented milk acquired, and it is not necessary to necessarily add it. In order to raise this preservability, germicidal treatment of the obtained fermented milk can also be carried out.

[0011]Grape juice used for this invention, for example Campbell early (Cambell Early), Concord (Concord), muscat bailey A (Muscat Bailey A), Fred Nia (Fredonia), Delaware (Delaware), Niagara (Niagara), Portland (Port land), Raw material grapes, such as the neo ant cant (Neo Alicant), a publicly known manufacturing process, For example, 1 / 6 concentration grape juice which could be prepared and was usually condensed 6 times according to a publicly known concentration step, or commercial grape juice can also be used as it is by considering it as fruit juice according to washing, crash, heating, juice, ** pulp, stericooling, centrifugal separation, a filtering step, etc. As for especially a blending ratio of this 1 / 6 grape juice, it is preferred that it is the range of 0.2 to 5 weight section 0.1 to 20 weight section to said fermented milk 100 weight section. Since in besides said range desired palatability is hard to be acquired and an enhancement effect of the amount of feed intake falls, it is not desirable. Although a blending ratio of said grape juice showed 1 / 6 concentration grape juice which is usually used and which was condensed 6 times, The blending ratio of this grape juice should just blend about 6/5 quantity of concentration grape juice said 6 times, when it can be made to fluctuate-like proportionally according to the enrichment, for example, uses concentration grape juice 5 times.

[0012]In order to prepare a palatability feed raw material of this invention, it can obtain by mixing said fermented milk and grape juice. Under the present circumstances, although grape juice may carry out addition mixing during fermentation at the time of preparing fermented milk,

it is preferred to carry out addition mixing after an end of fermentation economically.

[0013]Although a palatability feed raw material of this invention can be used as feed as it is, it is preferred to mix and use it for other economical for example, feed, such as synthetic milk, milk substitutes, publicly known assorted mixed feed, and natural grass. Thus, as for the amount of palatability feed raw material used of this invention in a case of mixing with other feed, it is preferred that it is 1 to 30% of the weight of a range to the whole feed. When the amount used is less than 1 % of the weight, since a desired effect is not expectable, it is not desirable.

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EXAMPLE

[Example] Although an example explains this invention still in detail below, this invention is not limited to these.

[0016]

[Work example 1] The amount part of lactic starter (*Lactobacillus delbrueckii* subsp. *bulgaricus* ATCC-11842) duplex was inoculated into sterilization skim milk 100 weight section, 37 ** and 20-hour lactic acid fermentation were performed, and the sour milk of 1.5 % of the weight of lactic acid concentration ** was prepared. Subsequently, after inoculating the amount part of yeast starter (*Candida utilis* IFO-1086) duplex into the obtained sour milk, sucrose 45 weight section was added, and the nutrient of yeast was supplied, and also osmotic pressure was changed, and 25 ** was fermented for 20 hours. Addition mixing of the sucrose 61 weight section was carried out so that concentration grape juice (trade name "1 / 5 concentration grape juice", product made from Welch, Inc.) 2.1 weight section might be added 5 times after the end of fermentation and also it might become 50 % of the weight of sucrose concentration. After carrying out heat sterilization treatment of the obtained mixed liquor for 30 minutes at 80 **, it cooled to the room temperature and the palatability feed raw material was prepared. Subsequently, addition mixing of the palatability feed raw material 167 obtained weight section was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 833 commercial weight section for breast-feeding term baby pigs, and examination feed was prepared. Both of contrast feed which consists only of obtained examination feed and breast-feeding term baby pig feed of said marketing was installed so that he could eat freely, and it fed for six days (2kg/day of each feed) with the cafeteria system at two sample offering baby pigs (average weight of 9.6 kg), and a residue and the intake which spilt and deducted quantity were measured. Under the present circumstances, the moisture content of examination feed and contrast feed presupposed that it is the same, and exchanged the 1-day by day setting position of examination feed and contrast feed. The result is shown in

Table 1.

[0017]

[Comparative example 1] Palatability feed raw material 167 weight section obtained by preparing a palatability feed raw material similarly in the examination feed of Example 1 except not carrying out addition mixing of the grape juice is made to be the same as that of Example 1, Addition mixing was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 833 commercial weight section for breast-feeding term baby pigs, and comparative study feed was prepared. About the obtained comparative study feed, intake was measured like Example 1. The result is shown in Table 1.

[0018]

[Table 1]

	对照飼料 A (g / 頭・日)	試験飼料 B (g / 頭・日)	B / A
実施例 1	2 8 ± 1 3	767 ± 13***	2 7 . 4
比較例 1	7 8 ± 5 7	605 ± 57***	7 . 8

*** P < 0.001

[0019]Compared with comparative study feed, the examination feed containing the palatability feed raw material of this invention had remarkable palatability, and there was much intake of a passage clear from the result of Table 1.

[0020]

[Work example 2]To sterilization skim milk 100 weight section. The mixed starter who consists of lactic starter (*Lactobacillus delbrueckii* subsp.*bulgaricus* ATCC-11842) and yeast starter (*Candida utilis* FO-1086) 3 weight section is inoculated, Primary fermentation was performed at 37 ** for 20 hours, and the sour milk of 1.5 % of the weight of lactic acid acidity was prepared. Subsequently, sucrose 45 weight section was added to the obtained sour milk, and the nutrient of yeast was supplied, and also osmotic pressure was changed, and secondary fermentation was performed at 25 ** for 20 hours. Addition mixing of the sucrose 60 weight section was carried out so that concentration grape juice (trade name "1 / 5 concentration grape juice", product made from Welch, Inc.) 2.1 weight section might be added 5 times after the end of fermentation and also it might become 50% of sucrose concentration. After carrying out heat sterilization treatment of the obtained mixed liquor for 30 minutes at 80 **, it cooled to the room temperature and the palatability feed raw material was prepared. Subsequently, addition mixing of the palatability feed raw material 91 obtained weight section was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 909

commercial weight section for breast-feeding term baby pigs, and examination feed was prepared. Both of contrast feed which consists only of obtained examination feed and breast-feeding term baby pig feed of said marketing was installed so that he could eat freely, and it fed for six days (1.5kg/(day)) with the cafeteria system at two sample offering baby pigs (average weight of 6.0 kg), and a residue and the intake which spilt and deducted quantity were measured. Under the present circumstances, the moisture content of examination feed and contrast feed presupposed that it is the same, and exchanged the 1-day by day setting position of examination feed and contrast feed. The result is shown in Table 2.

[0021]

[Comparative example 2] Palatability feed raw material 91 weight section obtained by preparing a palatability feed raw material similarly in the examination feed of Example 2 except not carrying out addition mixing of the grape juice is made to be the same as that of Example 1, Addition mixing was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 909 commercial weight section for breast-feeding term baby pigs, and comparative study feed was prepared. About the obtained comparative study feed, intake was measured like Example 2. The result is shown in Table 2.

[0022]

[Table 2]

	对照飼料 A (g / 頭・日)	試験飼料 B (g / 頭・日)	B / A
実施例 2	70 ± 37	392 ± 41***	5.6
比較例 2	148 ± 114	288 ± 85*	1.9

* P < 0.05, *** P < 0.001

[0023]Compared with comparative study feed, the examination feed containing the palatability feed raw material of this invention had remarkable palatability, and there was much intake of a passage clear from the result of Table 2.

[0024]

[Comparative example 3] 5 times, addition mixing of the concentration grape juice (trade name "1 / 5 concentration grape juice", product made from Welch, Inc.) 2.5 weight section was carried out at feed (made in trade name "super pig milk *****", Inc. science feed research institute) 997.5 commercial weight section for breast-feeding term baby pigs, and comparative study feed was prepared. Both of contrast feed which consists only of obtained comparative study feed and breast-feeding term baby pig feed of said marketing was installed so that he could eat freely, and it fed for two days (1kg/(day)) with the cafeteria system at two sample

offering baby pigs (average weight of 6.2 kg), and a residue and the intake which split and deducted quantity were measured. Under the present circumstances, the moisture content of comparative study feed and contrast feed presupposed that it is the same, and exchanged the 1-day by day setting position of comparative study feed and contrast feed. As a result, the intake of comparative study feed is 167**10g/animal and, and a day.

The intake of contrast feed was 119**12g/animal and, and a day.

Under the present circumstances (comparative study feed / contrast feed), it was =1.4. As a result, it turned out that the palatability of the comparative study feed containing only the grape juice which does not contain fermented milk is not remarkable as compared with contrast feed.

[Translation done.]

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(54)【発明の名前】 増好性飼料原料

(57)【要約】

【構成】 発酵乳及びブトウ果汁を含有することを特徴とする増好性飼料原料。

【効果】 本発明の増好性飼料原料は、発酵乳の獨特とブトウ果汁の香味とを組合せているので、従来の飼料原料に比して、原畜効率に対して優れた増好性を示し、飼料攝取量を増加させることができる。また、発酵乳による整腸作用、免疫機能活性作用等により、下痢防止効果、疾患予防効果等を得ることができる。従って、特に離乳期及び成長期の仔畜動物に対して、優れた栄養促進効果を示す。

(2) 術前評5-7 6 2 9 2

2

【特許請求の範囲】

【請求項1】 発酵乳及びブドウ果汁を含有することを特徴とする酸性飲料。

【登場人物紹介】

九〇〇〇年
十月九日

【審査上の利用分野】本発明は、雌好性飼料原料に関するもので、特に子豚又は食欲低下した豚等の家畜動物に対して最も適した嗜好性を示す、飼料摂取量の増加、更には成長促進をもたらす雌好性飼料原料に関するものである。

100021

【従来の技術】近年、麻苦関節分野における技術的発展は目覚ましく、例れば分娩後約1～10日会の子宮に対しても人工乳を給与し、その後早期に開創を試みることによって、母線の体力回復を早め、出産効率を上昇させる等、麻苦動物の早期回復による経済効率の向上が図られている。しかししながら、麻苦早期における母乳から人工乳への切替えは、麻苦効率に対して多大なストレスを与え、飼料摂取量の減少、下痢、疾患等を引き起こし、一時的な本体減量及び健康障害等の原因となっている。

〔0003〕そこで、鋼材換算量の増減を計るために、例えばフレーバーの添加、鋼材水分合量の調整、鋼材形状の調整等が行なわれているが、その効果は十分でないのが現状である。

【0004】一方、飼料採取量の増加を更に改善するために、発酵乳から成る飼料添加剤(特開昭60-141232号公報)が提案されているが、その効果も完全に満足し得るものではなく、更に優れた飼料の開発が望まれている。

100051

【発明が解決しようとする課題】従って、本発明の目的は、特に早期離乳時等の齶齶動物に対して、飼料摂取量の増進を計り、発育を促進させることができる嗜好性飼料原料を提供することにある。

[9006]

【課題を解決するための手段】本発明によれば、発酵乳及びブドウ果汁を含有することを特徴とする嗜好性飲料原液が提供される。

【0007】以下本発明を更に詳細に記述する。

【0009】本発明に用いる発酵乳は、例えば獣乳を乳酸菌又は酵母類又は酵母類による発酵調製して調製する。

前記乳酸菌は、乳酸菌の性質により、必ず活性を保つことを前提とすると、貯蔵・輸送の問題は、多段階で行うものである。前記乳酸菌としては、通常乳製品原料として用いられる乳酸菌等を用いることができ、好ましくは牛、羊、山羊等の全脂酸乳、酸乳、酸乳等を使用することができる。また前記乳酸菌は、乳酸乳等在下場で可能なものであれば特に選定されるものではなく、例えば、ストレートコッカ

ス (*Streptococcus*) 属、ベテオコッカス (*Veillonella*) 属

属、ロイコノストック (Leuconostoc) 属、ラクトバチルス (Lactobacillus) 属、ビフィドバクテリウム (Bifidobacterium) 属等に属する乳酸菌等を学ぶことができ、更に具体的には、例えば分株技術として容易に入手可能な、ラクトバチルス・ブルガリカス (Lactobacillus bulgaricus) とラクトサバクテリウム・サブカルバクテリウム (Lactosaccharomyces subcalvatus)、ラクトバチルス・ヘルベティカス (Lactobacillus helveticus)、ラクトバチルス・アシ

10 ドフィラス(*Lactobacillus acidophilus*)、ストレプト

us), ストレットコカス・ラクチス (*Streptococcus lactis*), ロイコノックシットロボラム (*Leuconostoc citrovorum*), ピフィドバクテリウム・ビフィダム (*Bifidobacterium bifidum*), ピフィドバクテリウム・ロングバム (*Bifidobacterium longum*)等を挙げることができ、使用に際しては単独若しくは混合スターターとして用いることができる。また前記酵母として、酵母浮遊下培養可能な酵母又は乳酸浮遊下乳酸菌と併せて先発酵することにより増殖可能な酵母等を挙げることができる。更に具体的的には、例えば分離株を容易に入手することができる、サッカロミセス・セレビジス (*Saccharomyces cerevisiae*), キャンディダ・ダユリシス (*Candida utilis*), クリベロマイセス・ラクチス (*Clym-erovices lactis*)等を挙げることができ、使用に際しては単独若しくは混合物として用いることができる。

【0010】前記発酵乳を製造するには、公知の方法に従って行なうことができ、例えば2段階発酵を行う場合には、酸乳100重畳部に対して、乳酸菌又は乳酸菌と酵母とのスターーを1~5重畳部接種し、まず1次発酵

30 として、好ましくは2.5～4.5°Cにおいて16～48時間発酵させた後、必要に応じて、黒麹、ブドウ粕又は黒化酵母の種を、好ましくは1次発酵より得られた乳酸菌全体に対して1.5～5.0重量%添加して加糖し、次いで2次発酵して、1.5～3.0°Cにおいて1.5～2.5時間発酵を行うことにより得ることができる。また乳酸菌と酵母とを別々に発酵して発酵させた場合は、前記1次発酵時に乳酸菌を接種して乳酸発酵を行った後、前記2次発酵時に酵母を接種して共生発酵をすることにより得ることができる。前記加糖は、スターターの栄養源又は得られた発酵乳の保存性を向上させるためのものであって、必ずしも御加する必要はない。また該保存性を向上させるために得られた乳酸菌を酵母処理することもできる。

1911年半ばに用いられたソーヴィニヨン、いわばコンペルアーリー(Combel Early)、コンコート(Concord)、マスカットベリー(A Muscat Bailler A)、フレッドニア(Fredonia)、デラウエア(Delaware)、ナイアガラ(Niagara)、ポートラント(Port Land)、ネオアーリカンド(Neo Alcanc)等の新規ブドウを、公知の栽培工程、例えば剪定、土壠、施肥、剪枝、疏花疏果等の栽培技術を用いて、新規栽培法を確立した。

(3) 表頭單元5 = 7 6 2 9 2

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本発明はこれらに限定されるものではない。

分解、発酵工程等に従って果汁とすることにより製造することができ、また公知の発酵工程により通常は**6倍濃縮**した／**6倍濃縮**ブドウ果汁又は市販のブドウ果汁をそのまま使用することもできる。販路／**6倍濃縮**果汁の配合割合は、前記発酵乳100重量部に対して0、1～2重量部、特に0、2～5重量部の範囲であるのが好ましい。前記範囲外の場合には、所定の嗜好性が得られにくく、酵母担取量の嗜好性効果が低下するので好ましくない。前記ブドウ果汁の配合割合は、通常用いられる**6倍濃縮**した／**6倍濃縮**ブドウ果汁について示したが、該**ブドウ果汁**の配合割合は、その濃度に応じて比例的に増減することができ、例えば**5倍濃縮**ブドウ果汁を使用する場合、前記**5倍濃縮**ブドウ果汁の**6／5**倍程度の量を配合すれば良い。

【0012】本発明の確好性酵母原料を調製するには、前記乳酸乳とブドウ果汁とを復合することにより得ることができる。この際ブドウ果汁は、乳酸乳を調製する際の発酵中に添加混和しても良いが、経済的には発酵終了後に添加復合するのが好ましい。

【0013】本発明の嗜好性飼料原料は、そのまま飼料として用いることができるが、飼育的には例えば人工乳、代用乳、公知の配合飼料、天然牧草等の他の飼料と併用して使用するのが好ましい。このように他の飼料と併用する場合の本発明の嗜好性飼料原料の使用量は、飼料全体に対して、1～30重量%の範囲であるのが好ましい。使用量が1重量%未満の場合には、所望の効果が期待できないので好ましくない。

〔0014〕
〔発明の効果〕 本発明の嗜好性乳酸肥料原糞は、発酵乳の風味とブトウ果汁の香味とを組合せているので、従来の飼料原糞に比して、家畜効力に対して優れた嗜好性を示し、糞便摂取量を増進させることができる。また、発酵乳による腸管作用、免疫機能調節作用等により、下痢防止効果、疾患予防効果等を得ることができる。従って、飼育乳酸菌及び成長飼の疾患動物に対して、優れた発酵乳製造を示す。

【0015】
【実施例】以下本発明を実施例により更に詳細に説明する。

〔0016〕

〔実例1〕殺菌脱脂乳100重量部に、乳酸菌スター（*Lactobacillus delbrueckii subsp. bulgaricus* ATCC-11842）2重量部を接着して、3.7℃、2時間乳酸発酵を行い、乳酸度1.5重量%の乳酸を調製した。次いで得られた乳酸乳に酵母スター（*Candida utilis* IFB-1066）2重量部を接着した後、糖類4.5重量部を添加して酵母の栄養液を詰めし、更に過圧を変えて2.5℃、2時間発酵させた。発酵終了後、5倍過濾ブドウ果汁（商品名「1／5濃縮ブドウ果汁」、ウエルチ社製）2.1重量部を添加し、更に糖濃度5.0重量%になるように、蔗糖1.1重量部を添加混合した。次いで得られた酵母性酵母原液を0℃で30分間冷蔵殺菌後調製した。次いで得られた酵母性酵母原液1.67重量部を、市販の嘲乳期子豚用飼料（商品名「スーパー ピミルクくなっ子」、株式会社日本学園研究所製）8.33重量部を添加混合して試験飼料を調製した。得られた試験飼料と前記市販の嘲乳期子豚用飼料のみからなる对照飼料とを、一方自由に食べられるように設置し、供試仔豚（平均体重6.9kg）2頭にカフェテリア方式で6日間（各飼料2kg/kg）給食して、喫量及びびこぼ量を差し引いた摂取量を測定した。この様、試験飼料と对照飼料との水分含有量は同一とし、また試験飼料と对照飼料との營養構成を1日ごと交換した。その結果を表1に示す。

〔0017〕

〔比較例1〕実例1の試験飼料において、ブドウ果汁を添加混合しない以外は同様に嗜好性飼料原料を調製し、得られた嗜好性飼料原料1.67重量部を表裏1と同様にして、市販の嘲乳期子豚用飼料（商品名「スーパー ピミルクくなっ子」、株式会社日本学園研究所製）8.33重量部に添加混合して比較試験飼料を調製した。得られた比較試験飼料について、実験例1と同様に摂取量を測定した。その結果を表1に示す。

〔0018〕

〔参考文献〕

[数1]

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	对照飼料A (g/頭・日)	試験飼料B (g/頭・日)	B/A
実施例1	28±13	767±13***	27.4
比較例1	78±57	605±57***	7.8

本研究 $P < 0.001$

【0019】表1の結果から明らかなとおり、比較試験飼料に比べて、本発明の嗜好性飼料原料を含む試験飼料は嗜好性が顯著であり、被取食が多かった。

【実施例2】殺菌脱脂乳100ml容器に、乳酸菌スター

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C-11842)及び酵母スター(Candida utilisIFO-1086)3重巣部からなる食感スターを添加し、37°Cで20時間、1次発酵を行ない、乳酸濃度1.5重巣%の発酵液を調製した。次いで得られた発酵液に重巣4.5重巣部を添加して、酵母の栄養源を補給し、更に浸透圧を変えて、25°Cで20時間2次発酵を行った後、5倍濃縮ブトウ果汁(商品名「1/5濃縮ブトウ果汁」、ウェル株式会社製)2.5重巣部を添加し、更に糖濃度5.0%になるように、重巣6.0重巣部を添加合した。得られた混合液を80°Cで30分間加熱殺菌処理した後、室温まで冷却し、嗜好性飼料原料を調製した。次いで得られた嗜好性飼料原料9.1重巣部を、市販の哺乳期仔飼料(商品名「スーパービッグミルクこなっ子」、株式会社科學研究所製)9.0重巣部を添加混合して試験飼料を調製した。得られた試験飼料と前記市販の哺乳期仔飼料のみからなる对照飼料とを、両方自由に食べられるように設置し、供試子犬(平均体重6.0kg)

* 0kg)2頭にカフェテリア方式で6日間(1.5kg/日)給餌して、残量及びこぼし量を差し引いた摂取量を測定した。この際、試験飼料と对照飼料との水分含有量は同一とし、また試験飼料と对照飼料との貯蔵場所を1日ごと交換した。その結果を表2に示す。

【0021】

【比較例2】実施例2の試験飼料において、ブドウ果汁を添加合しない以外は同様に嗜好性飼料原料を調製し、得られた嗜好性飼料原料9.1重巣部を実施例1と同様にして、市販の哺乳期仔飼料(商品名「スーパービッグミルクこなっ子」、株式会社科學研究所製)9.0重巣部に混ぜて試験飼料とし、実施例2と同様に摂取量を測定した。得られた比較試験飼料について、実施例2と同様に摂取量を測定した。その結果を表2に示す。

【0022】

【表2】

	対照飼料A (g/頭・日)	試験飼料B (g/頭・日)	B/A
実施例2	7.0±3.7	39.2±4.1***	5.6
比較例2	14.8±11.4	28.8±8.5*	1.9

* P<0.05, *** P<0.001

【0023】表2の結果から明らかなとおり、比較試験飼料に比べて、本発明の嗜好性飼料原料を含む試験飼料は、嗜好性が顕著であり、摂取量が多かった。

【0024】

【比較例3】5倍濃縮ブトウ果汁(商品名「1/5濃縮ブトウ果汁」、ウェル株式会社製)2.5重巣部を、市販の哺乳期仔飼料(商品名「スーパービッグミルクこなっ子」、株式会社科學研究所製)9.9.7.5重巣部に添加混合して比較試験飼料を調製した。得られた比較試験飼料と前記市販の哺乳期仔飼料のみからなる对照飼料とを、両方自由に食べられるように設置し、供試

子犬(平均体重6.2kg)2頭にカフェテリア方式で2日間(1kg/日)給餌して、残量及びこぼし量を差し引いた摂取量を測定した。この際、比較試験飼料と対照飼料との水分含有量は同一とし、また比較試験飼料と対照飼料との貯蔵場所を1日ごと交換した。その結果、比較試験飼料の摂取量は、16.7±10.0g/頭・日であった。この際(比較試験飼料/対照飼料)=1.4であった。この結果、発酵乳を含まないブドウ果汁のみを含む比較試験飼料の嗜好性は、対照飼料に比して頗るなものでないことが判った。